

What is claimed is:

1. Method for correlating data records acquired in a signal acquisition device comprising:
  - 5 extracting an area of interest from said data record displayed on said signal acquisition device;
  - normalizing the area of interest;
  - creating a filter based upon normalized values of the area of interest;
  - passing the data record through said filter to obtain a correlation curve;
  - 10 and
  - identifying positions in said data record where the value of the correlation curve exceeds at least one user defined threshold.
2. The method of claim 1 wherein the step of extracting the area of interest
  - 15 further comprises marking a start and an end of the Area of Interest.
3. The method of claim 1 wherein the normalization of the area of interest further comprises:
  - obtaining a plurality of points defining the area of interest;
  - 20 calculating the mean of the said plurality of points; and
  - subtracting said mean from each of the said plurality of points.
4. The method of claim 3 wherein the step of creating the filter further comprises using the normalized values of the area of interest as coefficients for
  - 25 the filter.
5. The method of claim 1 wherein the filter is a Finite Impulse Response filter.
- 30 6. The method of claim 5 wherein the Finite Impulse Response filter further comprises a one dimensional matrix.

7. The method of claim 6 wherein the matrix contains  $2n+1$  coefficients where  $n$  is a number of coefficients on either side of a center point of a normalized value.
- 5 8. The method of claim 1 wherein the step of filtering the data record further comprises passing the data record through a Finite Impulse Response filter.
9. The method of claim 1 further comprising the step of performing holdoff during the filtering process to reduce the amount of processing required in
- 10 obtaining the correlation curve.
10. The method of claim 1 wherein the step of identifying further comprises marking a display of the signal acquisition device.
- 15 11. The method of claim 10 wherein the marking is performed by selecting from the group consisting of displaying the identified positions in a different color from the data record and displaying the identified positions at a different relative display intensity than the data record.
- 20 12. A computer readable medium containing a program which, when executed, performs an operation of correlating an area of interest of an acquired waveform with said acquired waveform, the operation comprising:
- extracting an area of interest from said data record;
- normalizing the area of interest;
- 25 style="padding-left: 40px;">creating a filter based upon normalized values of the area of interest;
- passing the data record through said filter to obtain a correlation curve;
- and
- identifying positions in said data record where the value of the correlation curve exceeds at last one user defined threshold.
- 30 13. The computer readable medium of claim 12 wherein the step of extracting the area of interest further comprises marking a start and an end of the Area of Interest.

14. The computer readable medium of claim 12 wherein the normalization of the area of interest further comprises:
- obtaining a plurality of points defining the area of interest;
  - 5 calculating the mean of the said plurality of points; and
  - subtracting said mean from each of the said plurality of points.
15. The computer readable medium of claim 14 wherein the step of creating the filter further comprises using the normalized values of the area of interest as
- 10 coefficients for the filter.
16. The computer readable medium of claim 12 wherein the filter is a Finite Impulse Response filter.
- 15 17. The computer readable medium of claim 16 wherein the Finite Impulse Response filter further comprises a one dimensional matrix.
18. The computer readable medium of claim 17 wherein the matrix contains  $2n+1$  coefficients where  $n$  is a number of coefficients on either side of a center
- 20 point of a normalized value.
19. The computer readable medium of claim 12 wherein the step of filtering the data record further comprises passing the data record through a Finite Impulse Response filter.
- 25 20. The computer readable medium of claim 12 further comprising the step of performing holdoff during the filtering process to reduce the amount of processing required in obtaining the correlation curve.
- 30 21. The method of claim 12 wherein the step of identifying further comprises marking a display of the signal acquisition device.

22. The method of claim 21 wherein the marking is performed by selecting from the group consisting of displaying the identified positions in a different color from the data record and displaying the identified positions at a different relative display intensity than the data record.

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23. An apparatus for correlating data records comprising:  
means for acquiring said data records;  
means for processing said data records by  
extracting an area of interest from said data record displayed on  
10 said signal acquisition device;  
normalizing the area of interest;  
creating a filter based upon normalized values of the area of interest; and  
passing the data record through said filter to obtain a correlation  
15 curve; and  
means for displaying said data records and correlation curve.

24. The apparatus of claim 23 wherein the normalization of the area of interest further comprises:

20 obtaining a plurality of points defining the area of interest;  
calculating the mean of the said plurality of points; and  
subtracting said mean from each of the said plurality of points.

25. The apparatus of claim 23 wherein the means for displaying displays an  
25 occurrence of the area of interest appearing in the data record in a first color and displays the data record in a second color.

26. The apparatus of claim 23 wherein the means for displaying displays an  
occurrence of the area of interest appearing in the data record at a different  
30 relative display intensity than the data record.